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(54) MANUFACTURE OF SEMICONDUCTOR DEVICE

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(57) Abstract:

PURPOSE: To diffuse Se easily and in high accuracy from a chalcogenide to which silver is added by a method wherein an amorphous chalcogenide layer, a principal ingredient thereof is Se, and a photoresist layer formed by stacking silver or a layer containing silver are made up on a substrate in a III-V group compound, and the surface is developed, coated with a heatproof film and thermally treated.

CONSTITUTION: A photoresist material 5 formed by laminating an amorphous chalcogenide 3 having 75 atom % Se and 25 atom % Ge and a layer 4 containing Ag is made up on a P type GaAs substrate 1, exposed 6 and developed. When a heatproof layer 8 of SiO_2, Ti, etc. is built up on the chalcogenide 7 to which Ag is added and thermally treated, Se is diffused from the layer 7, and an N layer 9 is obtained. The heatproof layer 8 is removed, an insulating film 11 is opened, and an electrode 12 is attached. A mask is not required except the inorganic photoresist layer 5, the layer 7 can be formed in a pattern of high accuracy, and the layer 9 can be brought to necessary concentration by controlling heat treatment time.